Abstract

Exposure-based therapy represents a first line treatment for anxiety disorders, but it is often underutilized. One target for improving client engagement is manipulating the theoretical perspective from which exposure is framed. Ninety-six adults with elevated social anxiety were enrolled in a two-session exposure therapy intervention. Participants were randomized to one of four conditions: 1) *Fear Reduction/Cognitive Reappraisal* 2) *Acceptance* 3) *Personal Values*, or 4) *Experimental Control*. The first three included brief psychoeducation and condition-specific experiential exercises and rationale; all four included in-session speech exposure, and between-session exposure for homework. Results revealed that compared to the experimental control, the three active conditions reported significantly higher treatment credibility, initial in-vivo exposure engagement, and improvement in social anxiety symptoms. The three active conditions showed few differences among themselves. This study demonstrates that a brief exposure intervention utilizing a credible rationale led to initial engagement in exposure therapy and improvement in social anxiety symptoms.

Keywords: social anxiety, exposure, treatment, fear reduction, cognitive reappraisal, acceptance, values

Does The Theoretical Perspective of Exposure Framing Matter?

Acceptance, Fear Reduction/Cognitive Reappraisal, and Values-Framing of Exposure for Social Anxiety

*Introduction*

Exposure-based therapy has been shown to represent an efficacious treatment for anxiety disorders, including social anxiety disorder (SAD; e.g., Barlow et al., 2002; Norton & Price, 2007; Olatunji et al., 2010). Despite its efficacy, however, exposure therapy remains underutilized by adults with social anxiety disorder. Treatment non-adherence and premature dropout can be barriers to treatment success across the anxiety disorders (Taylor, Abramowitz, & McKay, 2012) and is evidenced by relatively high attrition rates in social anxiety disorder treatment (Hofmann & Smits, 2008). Thus, understanding how to increase willingness to participate in treatment and to fully engage in the treatment process represents an important research aim.

Adherence to and engagement in exposure-based treatment, including completion of homework and in-session exposures, can impact treatment outcome. For example, completing in-vivo exposures within therapy sessions led to superior treatment outcomes for panic disorder with agoraphobia over assigning the same exposures for homework but not completing them within therapy sessions (Gloster et al, 2011). In addition, a meta-analysis across several anxiety disorders showed that homework completion, a central component of most exposure-based therapies, significantly predicted treatment outcome of traditional cognitive behavioral therapy (CBT) (Mausbach et al., 2010). Social anxiety disorder-specific CBT studies have similarly demonstrated the importance of homework completion for treatment outcome (Leung & Heimberg, 1996), particularly at follow up (Edelman & Chambless, 1995). Yet CBT therapists report that the majority of patients have problems with homework compliance (Helbig & Fehm, 2004). Given that exposure can be uncomfortable because it requires deliberate confrontation of feared stimuli and contexts, helping clients to engage in exposures in sessions and between sessions (for homework) can be challenging.

One way to increase exposure engagement might be to provide a credible treatment rationale. Research shows that treatment rationales can impact expectancies for change (Kazdin & Krouse, 1983), and that providing a credible rationale is important in psychotherapy regardless of the specific treatment approach (Oliveau et al., 1969). For example, Abramowitz et al. (2002) found that obsessive-compulsive disorder patients who understood their treatment rationales were more compliant with in-session exposure, which in turn was associated with greater post-treatment symptom improvement. Another study found that including a rationale in CBT for social anxiety disorder increased the perceived helpfulness of exposure, confidence in conducting exposures, and perceived self-efficacy for anxiety change, and that the first two predicted more frequent interpersonal exposure at follow-up (Ahmed & Westra, 2009). When testing the rationale for exposure therapy, England et al. (2012) compared a fear habituation-based versus acceptance-based framework during a 6-session, group exposure therapy for public speaking anxiety and found comparable between-group credibility, acceptability, and outcomes. However, the acceptance group achieved higher levels of diagnostic remission. In a single-session experimental study of adults with SAD, Kim (2005) found that different rationales to reduce safety behaviors did not change their number, but a cognitive rationale led to a greater decrease in anxiety and a “belief in their feared outcome” than an extinction rationale.

One of the most popular models for conducting exposure is based in CBT. The cognitive model describes bidirectional influences among thoughts, emotions, and behaviors, which form feedback loops (Clark, 1986; Alford & Beck, 1997). This model thus proposes modification of maladaptive cognitions and employment of behavioral experiments to uncover more realistic and adaptive ways of thinking, which ultimately lead to fear reduction (Beck, 1976; Beck, 2011). The cognitive model of social anxiety disorder specifically highlights maladaptive beliefs related to exaggerated probability (i.e. overestimation of the likelihood of an event occurring) and cost (i.e. overestimation of disastrous consequences) of socially unacceptable events (Clark and Wells, 1995). Therefore, exposure is viewed as a way to correct these beliefs (cognitive change) and thus facilitate fear reduction/habituation, and is presented as such.

In addition, another increasingly popular way to frame exposure for anxiety disorders is through an Acceptance and Commitment Therapy (ACT; Hayes, Strohsahl, & Wilson 1999) framework. From an ACT perspective, psychopathology arises out of low “psychological flexibility” (Hayes et al., 2006). The ACT model of psychological flexibility integrates six major components: cognitive defusion, acceptance, contact with the present moment, self-as-context, values, and committed action. ACT primarily strives to change the function of psychological events (e.g. thoughts, feelings), rather than to alter the events themselves (Hayes & Pierson, 2005). ACT draws upon exposure exercises for anxiety to promote the acceptance of fear in order to facilitate meaningful living even when fear is present, an approach with some empirical support for the treatment of social anxiety disorder (Craske et al, 2014) and mixed anxiety disorders (Arch et al., 2012).

Another component from the ACT model – emphasizing personal values - provides a potential framework for exposure. Exposure from a values perspective would encourage aligning behavior with what is important and meaningful, without regard for the presence or absence of internal experience. Preliminary support exists for framing interventions from a personal values perspective in efforts to promote health behaviors that hold long-term consequences (e.g., Anshel & Kang, 2007; Anshel, Kang, & Brinthaupt, 2010) and to employ identification of personal values to improve outcomes in potentially anxiety-provoking performance situations (e.g. Miyake et al., 2010). It is worth studying whether these different rationales produce differing outcomes, and whether they work through different processes.

Because different rationales may create different contexts for learning, framing exposure from distinct theoretical perspectives may result in distinguishable patterns of within session subjective levels of fear.

Thus, in the context of social anxiety, the present study seeks to examine different popular theoretical models for framing exposure within behavioral treatment. We aim to understand (a) whether a rationale for exposure-based therapy increases short-term engagement in treatment and (b) how distinct rationales, or ways of framing exposure-based therapy (including providing different psychoeducation regarding the function of avoidance in anxiety, positing different goals of exposure, describing different mechanisms by which exposure is helpful, and teaching different coping strategies for anxiety and fear) impact short-term engagement in and efficacy of exposure therapy following initial treatment contact. While there are various ways that exposure can be presented, we chose to examine widely used models based in ACT and CBT traditions. Specifically, we compare framing exposure for social anxiety from the following perspectives: 1) a traditional *Fear Reduction/Cognitive Reappraisal* perspective derived from traditional CBT, 2) an *Acceptance* perspective derived from ACT, 3) a personal *Values* perspective, also derived from ACT, or 4) no-psychoeducation (*Experimental Control* condition). We include an *Experimental Control* condition, without extensive framing or rationale, in order to differentiate the effects of framing/rationale from the effects of engaging in exposure without a detailed rationale. We compare two different sides of the ACT psychological flexibility model in the “*Acceptance*” condition (mindfulness, acceptance, defusion) and the “*Values*” condition (values and committed action) because research has indicated utility in understanding the different impact of these two core components (Levin et al., 2012; Villatte et al., 2016), and values in particular addresses treatment engagement. We target cognitive change (i.e. facilitating more realistic beliefs regarding the probability and cost of negative social events) in addition to fear habituation in the *Fear Reduction/Cognitive Reappraisal* condition rationale in order to match the community CBT standard (Hipol & Deacon, 2013). We utilize a brief, two-session intervention with between-session homework as a proxy for the initial, foundational first-contacts in exposure-based therapy.

**Methods**

*Participants*

Socially anxious undergraduates and recent graduates from the University of Colorado Boulder (UCB) and Utah State University (USU) were recruited between August 2012 and January 2014. People were eligible for the study if they (a) scored above 55 on the Liebowitz Social Anxiety Scale (see *Procedures*), (b) had no prior experience with cognitive or behavioral therapy, (c) were above the age of 18 and (d) were English speaking. Participants were recruited through the universities’ Human Subject Pool systems (SONA) and student course credit systems, flyers, online university advertisements, and announcements in classes. Participants were compensated for the 3-hour study in the form of course credit or payment of $10.00 per hour. Sessions took place in university-based psychology clinic rooms. UCB and USU IRBs approved the study and all participants provided informed consent.

Participants (n = 96) were an average age of 20.73 (*SD* = 4.98, Range 18 to 57 years) and 66.7% (*n* = 64) were female. The majority (84.4%, *n* = 81) of participants were Caucasian, with 6.3% (*n* = 6) identifying as Asian or Pacific Islander, 4.2% (n = 4) as Biracial, 3.1% (*n* = 3) as Hispanic/Latino, 1% (*n* = 1) as Native American, and 1% (*n* = 1) as Other.

At USU, 269 participants completed the online screener, the LSAS-SR, through the SONA system. Of these individuals, 112 met criteria for the study and 55 attended the first session. At UCB, the subject pool was pre-screened, so only those who were eligible could view and sign up for our study. Altogether, ninety-six young adults were randomized; all but five completed both sessions. These five failed to attend their second session and did not respond to repeat attempts to contact them, thus they were not included in final analyses.

*Procedure*

All participants were informed, upon consent, that the study consisted of two sessions. At the first session, all participants completed baseline questionnaires. Next, those in the three active conditions received the interactive psychoeducation about anxiety and avoidance based on their particular intervention condition. For example, *Fear Reduction/Cognitive Reappraisal* included that “avoiding or escaping anxiety-provoking situations actually leaves us feeling *more*anxiousabout the situations we’re avoiding because we never have the chance to realize that we can successfully face our fears and learn that in reality, they are much less realistic or less likely to come true than we thought. Additionally, avoiding or escaping anxiety doesn’t actually work to decrease our anxiety over the long term – actually, it often increases our level of anxiety over time because we never learn that our anxiety will go down on its own.” *Values* included that “Avoiding or getting out of anxiety-provoking situations prevents us from doing things we care about or that help us reach our life goals, like giving presentations in front of people, talking to people in authority, or forming new friendships.” *Acceptance* included that “everyone in the world experiences fear and anxiety- they’re natural- and although they can feel scary when they show up, how much they interfere is really dependent on how much power we give them. Fear and anxiety gain power when we treat them like they’re dangerous things and we’re unwilling to experience them…”

Next, the active conditions received the remainder of their 45-minute condition-specific intervention approach (see Conditions). Then, all conditions received standardized instructions for an in-session speech task, which was framed as an exposure exercise. Following the speech instructions, those in the active conditions were briefly reminded why (according to condition) exposure was useful, and to practice the skills recently learned. All participants then were given a 5-minute “mental preparation” period between the speech instructions and the speech task, immediately followed by the speech. Next, all participants completed treatment credibility questionnaires and received homework instructions to complete between-session exposures. Participants returned to the clinic exactly one week later to complete questionnaires, discuss homework (including validating condition-congruent learning experiences in the active conditions), and repeat the speech task.

*Conditions*

Participants were randomized, via an online randomizer, to one of four conditions: *Fear Reduction/Cognitive Reappraisal, Acceptance, Values*, or *Experimental Control Condition-* (control). The active conditions were manualized by drawing on commonly referenced materials from the relevant full-scale parent interventions: Eifert and Forsyth (2005) and Hayes and colleagues (1999) for the *Values* and *Acceptance* conditions, and Barlow and Craske (2007) and Abramowitz, Deacon, and Whiteside (2011) for the *Fear Reduction/Cognitive Reappraisal* condition. Basic principles of exposure, used in the *Experimental Control* condition, were derived from Abramowitz, Deacon, and Whiteside (2011).

For the sake of parsimony, we named the conditions based on the primary components of their parent interventions. We acknowledge that they do not purport to represent full-scale ACT or CBT but rather brief component versions of longer and more complex intervention packages, targeting specific components of these larger interventions. We included an *Experimental Control* condition in order to compare an active rationale/strategy, psychoeducation, + exposure to exposure alone. Participants in this condition were informed of their status during the consent process. Active condition rationales were matched in time, content (e.g. education, rationale), and time spent on experiential exercises. Condition-specific skills interventions included an explanation of the theoretical approach to anxiety, an experiential exercise, and a rationale for using exposure as a way to engage with and practice the concepts taught. The *Experimental Control* group was simply told that practicing doing things that make them anxious can be helpful for people with anxiety.

*Acceptance.* This condition centered on the mindfulness, acceptance, and defusion side of the ACT psychological flexibility (“hexaflex”) model (Hayes et al., 1999). The main aim of the *Acceptance* intervention was to facilitate the development of more observant and accepting relationships to anxiety, in order to engage in more meaningful behavior, even in the presence of anxiety or other forms of discomfort. Experiential exercises included presentation of a metaphor and related written reflection (the Passengers on the Bus), an eyes-closed mindfulness/cognitive defusion exercise (Thoughts on Clouds), and discussion of experiences. Preparation for exposures (the speech task and homework assignment) included encouragement to openly observe and experience anxiety as it occurred, without trying to get rid of it, while choosing to do what was important to them.

*Values.* This condition centered on the values and committed action side of the ACT psychological flexibility (“hexaflex”) model (Hayes et al., 1999). The *Values* intervention encouraged focusing on moving toward personally meaningful directions, even in the presence of anxiety, rather than allowing avoidance to hinder engagement in valued action. Experiential exercises included completing the Valued Living Questionnaire and discussion of personal values with the experimenter. Preparation for the speech task and homework assignment centered on helping participants to identify and reconnect to their values as motivation to continue doing what was needed behaviorally. Therefore, exposure was framed as an opportunity to practice engaging in valued but anxiety-provoking social behaviors that facilitated meaningful living. The *Values* condition was thus distinct from the *Acceptance* condition in that it emphasized the salience of values rather than ways of relating to anxiety.

*Fear Reduction/Cognitive Reappraisal.* The *Fear Reduction/Cognitive Reappraisal* intervention targeted two main concepts, as common in traditional CBT. First, it encouraged participants to focus on remaining in the context of the feared stimuli while observing anxiety reductions over time, thus emphasizing habituation and fear reduction. Additionally, it sought to modify maladaptive beliefs and expectations that maintain anxiety over time, by directly challenging these beliefs and facilitating observations of how the probability and cost of social anxiety were often less catastrophic than they anticipated. Experiential exercises included completion of a “brief negative cycle worksheet” (demonstrating links between thoughts, emotions, and behaviors) and an Odds Ratio worksheet (discussing and challenging the high predicted odds of feared events occurring, and eliciting alternative explanations for a fearful cognition) with guidance by and discussion with the experimenter. Preparation for the speech task and homework assignment included encouragement to stay in the feared context in order to notice fear decreasing over time and to recognize that the anticipated negative consequences were not as likely or unbearable as previously believed.

*Experimental Control.* The *Experimental Control* group did not receive psychoeducation, a rationale, or experiential exercises. In preparation for the speech task and homework assignment, participants were simply told that “practicing facing feared situations such as public speaking can be helpful for people who experience anxiety.”

*Exposure (Speech) Task*

The 10-minute speech task wasstandardized following procedures used in previous social anxiety studies (e.g., Hofmann, Heering, Sawyer, & Asnaani, 2009). Each participant was given a list of three controversial speech topics (e.g., your views of animal research, abortion, the death penalty), which were counter-balanced so that a different set of speech topics was provided at session two. Participants were asked to “Please stand in front of the [video] camera, and try to cover as many of the three topics as you can, and fill up as much of the time as you can. You can stop at any point, but try to fill up as much of the time as possible in order to facilitate (*condition-specific objective for exposure*).” They were told that members of the research team would later evaluate their speech quality. Participants delivered their speeches into a camera with no audience. After 10 minutes, the experimenter stopped them. Speech length was recorded as a behavioral outcome. In addition, numerical visual analog SUDS ratings (see *Measures*) were taken immediately before and after the speech.

*Homework*

All participants were asked to practice exposure to social situations that they avoided or found anxiety provoking in their daily lives and in discussion with the experimenter, brainstormed possible situations to practice. Participants were encouraged to complete “as many exposures as you can” during the week. They were given a summary sheet reiterating the main points from their assigned condition (except for experimental control) and worksheets to record the exposure situations in which they assessed their pre, peak, and post SUDS, willingness to engage, and time spent on the activity. Participants were instructed to return the homework packet at the second session.

*Measures*

*Outcome measures for Social Anxiety Symptoms.*

*Liebowitz Social Anxiety Scale- Self Report* (LSAS-SR; Baker, Heinrichs, Kim & Hofmann, 2002; Liebowitz, 1987) screened for elevated social anxiety and was additional used as an outcome measure. For screening purposes, an eligibility cutoff score of 55 was used, which previous research has shown balances sensitivity and specificity in detecting social anxiety disorder (Rytwinski et al., 2009). The LSAS-SR has excellent internal consistency (α = .83-.96), good test retest reliability (*r* = .83 for twelve weeks) and strong convergent and discriminant validity (Baker et al., 2002). Current study α = .92.

*The Fear of Negative Evaluation Scale* (*FNE*; Watson & Friend, 1969) assessed fear of negative social evaluation. It has adequate internal consistency and construct validity, and high reliability (Watson & Friend, 1969). Current study α = 0.82.

*Social Interaction Anxiety Scale* (*SIAS*; Mattick & Clarke, 1998) measured affective, behavioral, and cognitive anxiety symptoms during social interactions. It has strong discriminant validity, high internal consistency and good test-retest reliability (*r* =.92 over a 4-week period; Mattick & Clark, 1998). Current study α = 0.83.

Outcome measures specific to *Acceptance* and *Values.*

*Social Anxiety Acceptance and Action Questionnaire* (*SA-AAQ*; MacKenzie & Kocovski, 2010) assessed psychological flexibility/ active acceptance with 19 items adapted from the validated Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004) that were modified to focus on the domain of social anxiety specifically. The SA-AAQ was found to have high internal consistency, as well as good convergent and divergent validity (MacKenzie & Kocovski, 2010). Current study α = .91.

*Bull’s Eye Values Survey* (*BEVS;* Lundgren, Luoma, Dahl, Strosahl, & Melin, 2012). This three-part measure assesses valued living in the domains of work/education, leisure, relationships, and personal growth/health, denoting discrepancies between values and behavior and identifying obstacles to valued living. The BEVS evidenced good test-retest correlations (*r* = .70 for composite values attainment score, *r* = .90 for persistence with barriers score over 1-month; Lundgren et al., 2012).

*Outcome measures specific to Fear Reduction/Cognitive Reappraisal*

*Self-Statements During Public Speaking* (*SSPS;* Hofmann & DiBartolo, 2000) rated fearful cognitions during public speaking situations on the “Positive Self-Statements” (SSPS-P) and “Negative Self-Statements” subscales (SSPS-N), and consisted of 10 total items. Internal consistency, test-retest reliability, convergent validity, and discriminant validity are strong for both subscales (Hofmann & DiBartolo, 2000; Hofmann, Moscovitch, Kim, & Taylor, 2004). Current study α = .72 for the positive and α = .77 for the negative subscale.

*Probability Cost Questionnaire* (*PCQ;* Foa, Franklin, Perry, & Herbert, 1996)*.* This 40-item measure assessed perceived probability and cost (on two separate subscales) of hypothetical negative events. We used the probability scale because the cost subscale, due to administrator error, was given at only one site. The PCQ has demonstrated good test-retest reliability, *r* = .92, over one month and has shown good internal consistency (Foa et al., 1996). Current study α = .90 for the probability subscale.

*Subjective Units of Distress Ratings* (*SUDs*; Wolpe & Lazarus, 1966) represent self-rated levels of anxiety ranging from 0 (*no anxiety, completely relaxed*) to 100 (*maximum anxiety)*. SUDS have been widely used in the anxiety literature.

*Treatment Credibility*

We utilized a 6-item scale adapted from Borkovec & Nau (1972) that has been utilized in previous anxiety treatment research (Arch et al., 2012). Items included, for example, “How much do you believe this treatment approach will help you?” Current study α = .94.

*Statistical Approach*

*Data preparation.* All analyses were performed using SPSS Version 21. Analyses were intent-to-treat and thus included all participants who completed at least Session 1 of the study. If a particular measure was missing less than 20% of its items, mean and total scores were computed for that measure based on the present data points. Only two outliers (comprising less than 1% of the data) were sufficiently extreme (> 3*SD* from the measure mean) to require correction using the Winsor approach (Dixon & Tukey, 1968).

*Site Differences.* Independent samples *t*-tests and chi-square tests were conducted to examine CU *versus* USU site differences at baseline and over time.

*Main Analyses*. To compare groups on hypothesized outcomes, we used *apriori* contrast coding within each linear regression equation. Specifically, we used 3 sets of contrast codes that allowed us to examine the experimental control versus all three active intervention groups and the three pairwise active-group comparisons: *Acceptance* versus *Fear Reduction and Cognitive Reappraisal*, *Values* versus *Fear Reduction and Cognitive Reappraisal*, and *Values* versus *Acceptance*. In examining peak and post-exposure SUDS during homework exposures and the speech task, we controlled for pre-exposure SUDS. In examining outcomes at Session 2, we controlled for Session 1 scores on the same variable. Due to the exploratory nature of this study, we note trend differences of *p*< .10 in addition to significant differences of *p* < .05.

Power Analysis

Power analyses conducted using G\* Power software with an alpha level of .05 and a power of 0.80 with four groups suggested a total sample size of 96 in order to detect a medium effect size for a repeated measures ANOVA. Thus, our completer sample size of 91 was sufficient to detect large group differences and approached the sample size needed to detect medium group differences.

**Results**

*Site Differences- Clinical Outcome Variable*s. There were no significant site differences on the majority (5 of 8) of baseline measures. UCB had slightly higher baseline social anxiety as measured by the SIAS (*p* = .03) and FNE (*p* = .04), as well as lower baseline SA-AAQ scores (*p* < .001). However, change scores from session 1 to session 2 on all measures did not differ between sites, suggesting that participants at both sites benefitted similarly regardless of some baseline differences.

*Group Differences in Outcomes*

*Social Anxiety Symptoms.* As presented in Table 1, the three active conditions evidenced significantly greater improvement in general social anxiety symptoms than did the experimental control condition, indicated by lower Session 2 scores (controlling for Session 1 scores) on the LSAS, *b* = 0.73, *t*(84) = -2.82, *p* = .01, and the SAIS, *b* = -.16, *t*(84) = -2.23, *p* = .03. The active intervention groups did not differ among themselves on the LSAS or SAIS, *p*s > .16. No significant group differences emerged on the FNE, *p*s > .16.

*Fear Reduction/Cognitive Reappraisal-Consistent Outcomes.* As presented in Table 1, and as predicted, the active intervention groups exhibited significantly greater improvement than the *Experimental Control* group on the PCQ-Probability Subscale, *b* = -0.16, *t*(82)= -2.13, *p* = .04, they did not differ among themselves, *p*s > .44.

Additionally, at session 2, individuals in the three active conditions trended toward greater positive SSDPS-Positive Subscale scores than those in the *Experimental Control* condition, *b* = 0.14, *t*(84) = 1.77, *p* = .08. No differences were evident for negative self-statements, *p*s > .51.

No group differences emerged in SUDS immediately prior to delivering the speech in session 1 or 2. However, participants in the *Values* condition reported trend-level higher SUDS prior to their speech in session 1 than those in the *Acceptance* or *Fear Reduction/Cognitive Reappraisal* conditions, *b* = -0.17, *t*(93) = -1.84, *p* = .07; other *p*s> .12. Consistent with predictions, participants in the active intervention groups reported significantly lower SUDS than the *Experimental Control* group immediately following the Session 1 speech, *b* = -0.22, *t*(93) = -2.39, *p* = .02. Among the active groups, *Acceptance* reported higher SUDS immediately following the Session 1 speech than *Fear Reduction/Cognitive Reappraisal*, *b* = -0.22, *t*(93) = -2.43, *p* = .02. However, none of these group differences carried over in Session 2, *p*s > .09.

*Acceptance and Values-Consistent Outcomes.*

As presented in Table 1 andconsistent with predictions, the active intervention groups demonstrated significantly greater improvement on the BEVS than the *Experimental Control* group, *b* = 0.17, *t*(74) = 2.11 *p* = .04. However, contrary to predictions, the active intervention conditions did not differ among themselves on the BEVS, *p*s > .28. Further, no group differences emerged on the SA-AAQ, *p*s > .42.

*Group differences in treatment credibility*

Consistent with predictions, ratings of the treatment approach at the end of Session 1 and 2 were significantly more positive in the active intervention groups than in the *Experimental Control* group: Treatment Credibility, Session 1, *b* = 0.49, *t*(93) = 5.40, *p* < .001, and Session 2, *b* = 0.19, *t*(84) = 2.60, *p* = .01. The active intervention groups did not differ among themselves at either time point, *p*s > .20.

*Group differences in degree of engagement in exposure* (presented in Table 2)

*In-session measures.* Participants in the active conditions trended toward giving significantly longer speeches in Session 1 than did *Experimental Control* participants, *b* = 0.18, *t*(87) = 1.72, *p* = 0.09. This difference was not evident in Session 2, *b* = -0.01, *t*(75) = -0.17, *p* = 0.87, and the active intervention groups did not differ among themselves in either session, *p*s > .28.

*Between-session measures.* There were no significant group differences in the number of exposures completed for homework between Session 1 and 2, *p*s > .32. The remaining homework measures depended on completion of at least 1 homework exposure, and were thus conducted only with participants who completed at least some homework (*n* = 79 or 96% of participants who attended session 2). The active and *Experimental Control* groups showed no differences on homework variables, *p*s > 21. However, among the active groups, the mean pre-exposure SUDS across all homework exposures trended toward being higher in *Fear Reduction/Cognitive Reappraisal* condition than in acceptance, *b* = 0.21, *t*(77) = 1.84, *p* = .07, although the mean post-exposure SUDS (controlling for pre-exposure SUDs), across all homework exposures did not differ between groups, *p*s > .21. Controlling for pre-exposure SUDs, the *Fear Reduction/Cognitive Reappraisal* group trended toward greater willingness to engage in exposures than acceptance, *b* = .20, *t*(77) = 1.74, *p* = .09. Finally, participants in the *Values* condition reported higher mean peak (i.e. maximum) SUDS during the homework exposures than those in *Acceptance* or *Fear Reduction/Cognitive Reappraisal*, *b* = -.24, *t*(77) = -2.11, *p* = .04.

Discussion

Overall, this study demonstrated that framing exposure from *Acceptance*- (ACT), *Fear-Reduction/Cognitive Reappraisal*- (traditional CBT), and *Values*-based (ACT) perspectives on psychoeducation and exposure for social anxiety were effective and comparable. Findings indicated that the active intervention conditions, which provided more in-depth psychoeducation and treatment rationale, were rated as more credible than the *Experimental Control* group, corroborating previous findings that the presence of a strong treatment rationale represents an important component of exposure-based treatment (e.g., Ahmed & Westra, 2009). Treatment credibility differences were not attributable to providing coping skills, because *Values* provided a rationale/motivating framework but not specific anxiety-related coping skills, and received comparable treatment credibility ratings as *Fear Reduction/Cognitive Reappraisal* and *Acceptance*, which provided specific strategies for handling anxious thoughts and feelings.

Results also showed that the three active conditions led to greater reductions in social anxiety symptoms than the *Experimental Control* but did not differ from one another. These findings are consistent with those of Nelson et al. (2010), demonstrating that cost and probability-oriented rationales each did not differ on treatment acceptability or likeability.

Additionally, those in the active conditions demonstrated increased exposure engagement by trending toward giving longer in-session speeches than the experimental control at session 1. However, group differences were no longer evident at session 2. This set of findings suggests that providing a detailed rationale and teaching skills were helpful in promoting initial engagement in exposure. The experience of practicing exposure in session and during the week of home practice, however, diminished group differences. Findings from this study are consistent with recent findings from a large online-based study, which confirmed that providing a theory-based rationale improved the credibility of exposure therapy, however theoretically distinct rationales did not impact the credibility of exposure (Arch, Twohig, Deacon, Landy & Bluett, 2015).

Contrary to expectations, between-session exposure engagement, measured via self-reported tracking of homework, showed no group differences. The high compliance ratings for homework were similar to those found in other brief exposure interventions for SAD (Hindo & González-Prendes, 2011; England et al., 2012). The effects of experimental pressures or over-reporting cannot be ruled out. However, the fact that participants reported detail (i.e., date, time, and brief description of the exposure) on their homework would have made it more difficult to falsely report.

Finally, those in the *Values* condition reported higher peak anxiety for homework exposures than did those in *Fear Reduction/Cognitive Reappraisal* or *Acceptance.* This could be because the *Values* rationale and its goals facilitated greater motivation and willingness to experience anxiety in the service of one’s values, thus leading to attempts at more challenging exposures. There also could have been important qualitative differences in homework that we failed to capture with self-report, such as the relative challenge level or personal salience of chosen exposures or degree of prior avoidance to exposure situations, which could be assessed in future studies.

With regard to processes of change, there were no differences between the active and *Experimental Control* groups on psychological flexibility. Previous studies indicate that scores on psychological flexibility measures can be difficult to shift (Forman et al., 2012), and a brief intervention might have been insufficient to measurably change it. On the *Fear Reduction/Cognitive Reappraisal*-specific measures, all three active groups evidenced more or nearly more improvement than the experimental control group. Similarly, participants in the active conditions all improved more than the *Experimental Control* on the values measure (BEVS) but this effect was not enhanced in the *Values* condition. The lack of group differences may reflect the brevity of the intervention or the previous finding that distinct behavioral interventions including ACT and CBT may share overlapping processes – particularly if they utilize exposure (e.g., Arch, Wolitzky-Taylor, Wolitzky-Taylor, & Efiert, Craske, 2012).

Lastly, at session 1, exploratory analysis revealed self-reported fear levels were lower post-speech in the active conditions than in the *Experimental Control* group. Additionally, at session 1, *Fear Reduction/Cognitive Reappraisal* reported lower post-speech fear levels than *Acceptance*. It is unclear whether the lower post-speech fear levels for the *Fear Reduction/Cognitive Reappraisal* group was due to an actually distinct mechanism of change (e.g. greater habituation), expectancy, or increased attention to fear.

Findings from this study are consistent with those of two previous studies showing similar outcomes between acceptance-based and traditional CBT-based protocols for social anxiety (England et al, 2012; Craske et al, 2014), suggesting that approaching feared situations on the basis of a detailed, theory-based rationale, represents a common pathway for the successful behavioral and cognitive-behavioral treatment of social anxiety.

Results from the present study demonstrate that a brief exposure intervention with substantial rationale was efficacious in leading to engagement in exposure following first treatment contact, and short-term therapeutic change, in a socially anxious population. While previous studies have examined brief interventions for this population (e.g., Kim et al. 2002; Amir et al., 2008; Chaplin & Levine, 1981), none of these studies have compared the impact of brief, theoretically distinct exposure rationales/strategies on exposure engagement both in and out of session, or compared how a brief intervention facilitates initial engagement in exposure out of session more generally. Results are consistent with findings presented by Arch et al., (2015) such that providing a credible theoretical rationale is useful, regardless of the rationale’s theoretical framing (Arch, Twohig, Deacon, Landy & Bluett, 2015). This is also the first study to demonstrate that connecting adults with personal values and explicitly linking those values to exposure by itself promotes initial exposure engagement. This is consistent with prior studies that have shown that ranking personal values changes behavior and increases receptivity to health-promoting information (e.g., Sherman, Nelson, & Steele, 2000).

Results from the present study also hold encouragingclinical implications, including the ability for a brief intervention to facilitate initial improvement in social anxiety symptoms and engagement in exposure in-session and between-sessions (exposure homework). The relative success of all three active conditions compared to the *Experimental Control* suggests that the framing of exposure can differ in content yet produce similar outcomes, at least in the short-term. Additionally, the fact that the *Values* condition was indistinguishable from the other two active conditions on several outcomes indicates that increasing contact with values is sufficiently motivating for adults to initially engage in and reap benefits from exposure for social anxiety. In conclusion, there might not be *one* “right” way to initially frame exposure therapy in the context of social anxiety, at least within the context of evidence-based approaches, as long as the therapist provides a *bona fide* exposure rationale and psychoeducation.

The present study had several limitations. First, the study was underpowered to detect small to medium group differences, as evidenced by frequent trend-level findings. Second, the sample was composed primarily of white, undergraduate young adults with elevated social anxiety levels, rather than a diverse treatment seeking population with a social anxiety disorder diagnosis. The lack of a clinical diagnosis limits generalizability to a treatment-seeking, social anxiety disorder population. However, given that the average LSAS-R score for our sample was within the range that has been found in populations diagnosed with social anxiety disorder (Rytwinski et al., 2009), the sample likely approximated a clinical group. Third, to minimize overlap among the conditions yet integrate multiple components of the ACT model, the *Acceptance* condition very briefly touched on values, though to a far lesser extent than the *Values* condition. Thus, there was a small degree of overlap in treatment components for the *Values* and *Acceptance* conditions, although the conditions were largely distinct. Fourth, this study did not include a no-exposure control condition, thus making it difficult to attribute improvements in social anxiety symptoms to the framing/psychoeducation/rationale alone. Fifth, the active conditions each contained multiple treatment elements that are known generally to be important to treatment outcomes, including psychoeducation, in-session exercises, and a credible rationale; the *Experimental Control* contained none of these. Additionally, only the active groups received a written homework rationale sheet along with their homework logs. Therefore, we are unable to determine which of these components accounted for active-control differences in treatment engagement and outcomes. We also acknowledge that the *Experimental Control* condition, which was included in order to clearly differentiate the effects of exposure itself from rationale effects, may not represent a form of intervention that would typically be utilized by therapists outside of an experimental paradigm. Sixth, the study lacked a post-rationale manipulation check, which should be included in future studies to better understand the extent to which participants understood the rationales. Seventh, we did not collect treatment fidelity or integrity data to assure that no differences existed between sites on rationale delivery and exposure implementation. However, experimenters followed a highly detailed, written study protocol and rationale scripts developed for this study. The fact that there were no significant site differences in pre-post scores on any measure indicate that the two sites were not systematically impacting main outcomes differently. Additionally, integrity testing is not common practice in laboratory experiment protocols (Sass, Twohig, & Davies, 2004). Eighth, this intervention is far briefer than typical exposure-based treatments for social anxiety disorder (e.g., Heimberg, 2002), and thus the findings may not generalize to full exposure-based treatment studies. We acknowledge that participants knew that the intervention consisted of only two sessions, so their engagement may have differed from what it would have been if it were truly the initial portion of a longer treatment package. Ninth, the speech data were analyzed primarily by duration, which may not capture speech quality or other important elements; future research should include behavioral measures beyond duration to code for quality of exposure engagement. Lastly, we lacked follow-up data; future studies should investigate whether these different ways of framing exposure therapy diverge over the long term.

*Conclusions*

We aimed to contribute to the nascent literature on framing exposure by investigating the impact of different theoretical approaches to presenting exposure for social anxiety. A two session exposure intervention for elevated social anxiety framed from a traditional *Fear Reduction/Cognitive Reappraisal*-, *Acceptance*-, or *Values*-based perspective was perceived as credible and led to strong homework engagement, initial engagement within in-session exposure, and short-term improvement in clinical symptoms. Most outcomes improved significantly more in the active conditions than in the *Experimental Control* condition, which indicates that at least some components (i.e. psychoeducation, rationale, exercises) of these brief interventions imparted effects above and beyond the effects of exposure alone. It thus appears that multiple evidence-based ways to present exposure therapy for social anxiety are initially effective, though research in community treatment-seeking populations is needed. More generally, this study underscores the importance of providing an adequate rationale for exposure therapy.

**Author’s Note:**

The first and second listed authors provided equal contributions to this study and manuscript and are shared first authors of this publication. Their names are therefore listed alphabetically.

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**Conflicts of interest**

All authors declare that they have no conflicts of interest.

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